

*HELICOPSYCHE MALICKYI* SP. N. FROM BORNEO  
(TRICHOPTERA, HELICOPSYCHIDAE)

Johanson, K. A., 1998. *Helicopsyche malickyi* sp. n. from Borneo (Trichoptera, Helicopsychidae). – Tijdschrift voor Entomologie 140 [1997]: 177-180, figs. 1-10. [ISSN 0040-7496]. Published 26 March 1998.

*Helicopsyche malickyi* sp. n. (Trichoptera: Helicopsychidae) is described from Sarawak, Malaysia. This is the first description of a species of Helicopsychidae from Borneo, and the third species from the Malesian Archipelago.

Correspondence: Kjell Arne Johanson, Museum of Zoology, University of Bergen, Muséplass 3, N-5007 Bergen, Norway. E-mail: kjell.johanson@zmb.uib.no.

Keywords. – *Helicopsyche malickyi* sp.n.; Helicopsychidae; Trichoptera; Malaysia; Borneo.

With the description of *Helicopsyche malickyi* sp.n., the Helicopsychidae now includes 173 extant described species (Johanson 1995, 1997a, Malicky 1994, Malicky & Chantaramongkol 1993) and forms a moderately large group of caddis flies. The highest species numbers are found in Antillean, Indo-Chinese and Ceylonese subregions (Johanson 1997b). The family is mainly confined to tropical and subtropical areas and the larvae seems to prefer stream habitats. The Helicopsychidae species are recognized by having larvae which build dextrally coiled cases made from sand grains glued together by silk. The adults can be distinguished from species in other families by the presence of an abdominal VIth sternal process in most species, and the absence of nigma in both fore and hind wing fork 2.

The Indo-Malayan Helicopsychidae fauna comprises six species: *Cochliopsyche angusta* (Ulmer, 1951); *Helicopsyche boniata* Malicky & Chantaramongkol, 1992; *H. lata* Ulmer, 1951; *H. putnula* Malicky & Chantaramongkol, 1992; *H. anakaku* Malicky, 1995 and *H. anaktangga* Malicky, 1995. However, only *C. angusta* and *H. lata* are previously described from the Malesian Archipelago (Ulmer 1951, 1955, 1957) (fig. 1) and species records indicated absence of Helicopsychidae from Sarawak (Kimmins 1955). The southeast Asian Helicopsychidae fauna is considered richer than indicated by known species number and Huisman (1991) added to the knowledge two undescribed *Helicopsyche* species from Borneo (Sabah) (fig. 1), which remain yet to

be described. The present record from Sarawak thus adds valuable information to the understanding of the biogeographic history of Helicopsychidae in southeast Asia.

***Helicopsyche malickyi* sp. n.**  
(figs 2-10)

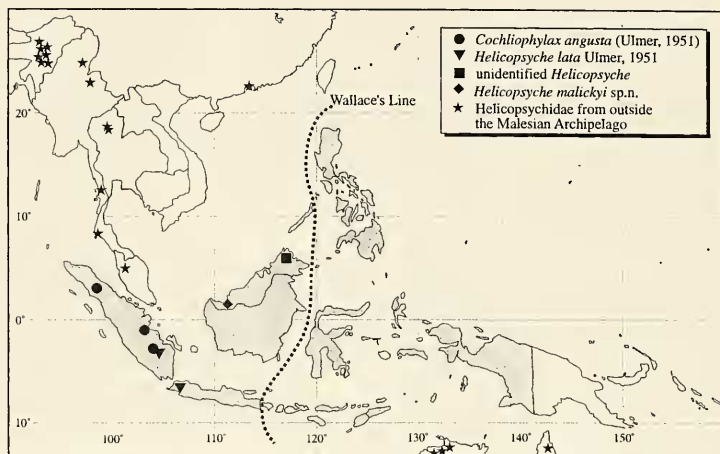
Type material. – Holotype ♂, Malaysia, Sarawak, 1st Div., Semongoh Forest Res., 1°25'N, 110°17'E, 15-19. XI. 1976, Malaise trap over stream [P. S. Cranston]. Natural History Museum, B. M. 1977-19. In Canada Balsam.

**Description**

With the two-jointed maxillary palp *H. malickyi* sp. n. is easily distinguished from the two other Helicopsychidae from the Malesian Archipelago: *C. angusta* and *H. lata* which have four and three joints, respectively. The spherical interantennal warts, distally reduced Cu, in the fore wing and the pointed abdominal VIth sternal process in *H. malickyi* sp.n. indicate a close relation to other Oriental and Palearctic Helicopsychidae. *H. malickyi* sp.n. is similar to the northern Thailand *Helicopsyche namtok* Malicky, 1993, but is easily separated by the IXth segment of the genitalia which is pointed dorsally and ventrally; by the primary branch of the gonocoxite which is larger and parallel-sided; by the bifurcated secondary branch of gonocoxite; and Xth tergum which is slightly shorter. Both scape and maxillary palp are short. In most

Fig. 1.

The distribution of Helicopsychidae in southeast Asia, New Guinea and northern Australia, with Indonesia, Malesian islands and Philippines emphasized in grey. The *Helicopsyche* species of the Malesian islands are indicated by separate symbols. Other species are mapped as stars.



Helicopsychidae the vertex is rounded in lateral view and is only slightly visible in lateral view. *H. malickyi* sp.n. is separated from other *Helicopsyche* by the slightly dorsally produced vertex; Xth tergum of the genitalia which is slender in lateral view, gently curved ventrally and with two pairs apical setae; and the posterior margin of the gonocoxal primary branch which is highly undulated, and with two pointed postero-ventral processes.

### Description

Head (fig. 2). – With short scape, about twice the length of the pedicel. Maxillary palp short, the basal joint about as long as scape and distal joint. Eye large in lateral view, covering large parts of head. Cephalic warts rounded in dorsal view and separated by the postero-dorsad produced vertex. Postantennal warts situated between scapes, spherical. Pronotum with two pairs setal warts. Mesonotum and metascutellum with one pair setal warts. Spur formula 1,2,4.

Wings (fig. 3). – Fore wing length 3.0 mm, apically pointed. Fork 1 originates near median part of Dc, broad. Fork 2 about as long as fork 1. Crossvein R–M about 1.5× longer than basal part of R. Fork 3 present, with stalk about half as long as M<sub>3+4</sub>, and half M<sub>1</sub> length. Forks 4 and 5 absent. Crossvein between Cu<sub>1</sub> and Cu<sub>2</sub> short. A<sub>1+2</sub> meets posterior wing margin at about one third the wing length. Hind wing length 2.4 mm, with 13 hamuli. All forks absent. M<sub>1+2</sub> about half the R<sub>3+4</sub> length. Cu<sub>1</sub> and Cu<sub>2</sub> run parallel towards wing margin. A<sub>1</sub> and A<sub>2</sub> diverge towards wing margin.

Abdomen. – With sternites II–V well reticulated. VIth sternal process (figs 4 and 5) long, situated posteriorly and with rounded apex.

Genitalia (figs 6–10). – IXth segment trianguloid in lateral view, with dorsal and ventral parts slightly pointed (fig. 6); anterior marginal and short ventral

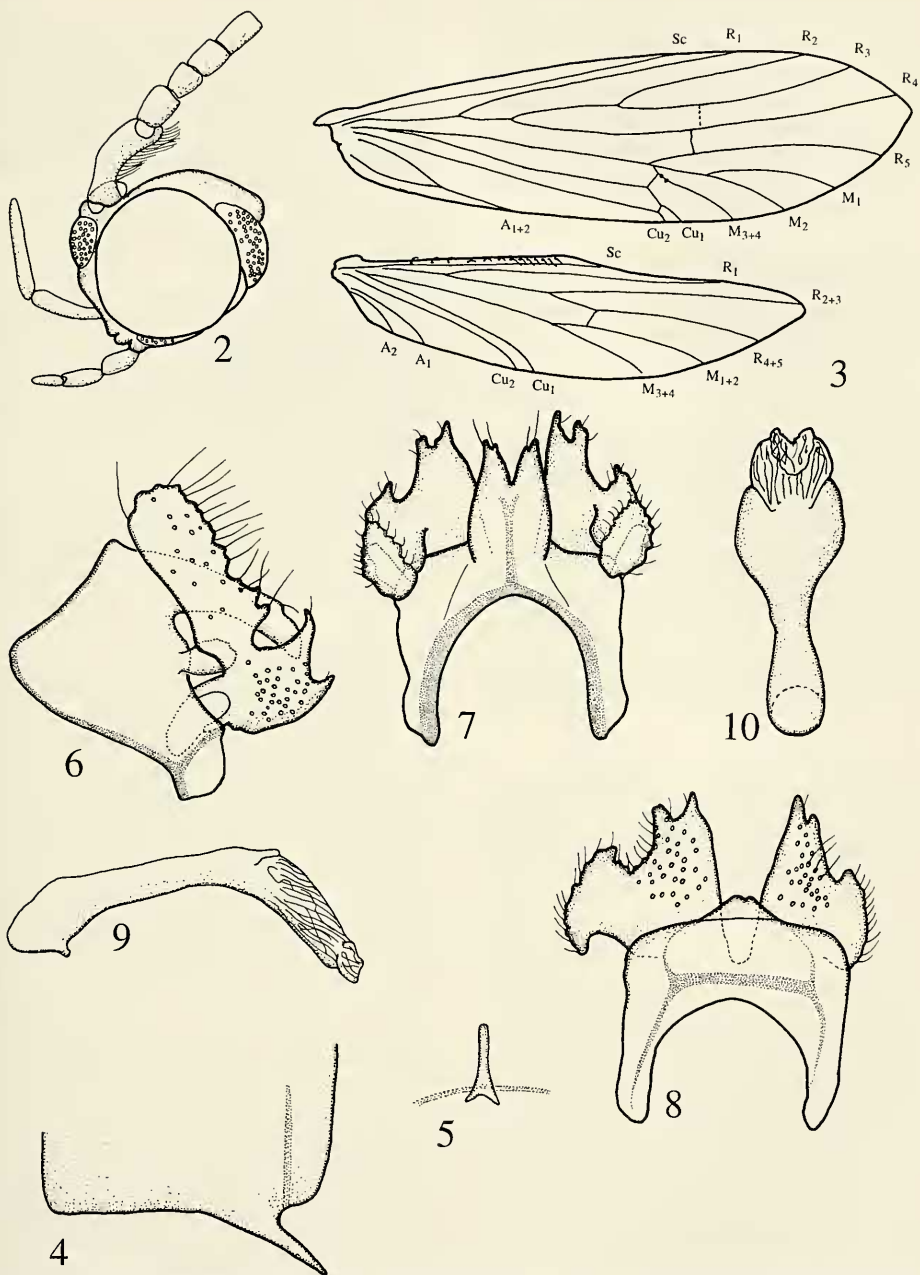
longitudinal apodeme present. The dorsal apodeme continues into a longitudinal central apodeme running into Xth tergum. Anterior part of IXth segment deeply concave in dorsal and ventral view (figs 7 and 8). Posterior part of IXth sternite extends into a short bi-lobed process (fig. 8). Superior appendage situated laterally, long, club shaped and covered by long setae. Gonocoxite, in lateral view (fig. 6), large, with large dorsal primary branch and ventral, bifurcated, posteriorly pointed ventral branch. Primary branch is parallel-sided, with rounded apex, smooth anterior and undulated posterior margins; undulations are associated with short setae. Ventral branch divides into two slightly dorsally curved and pointed processes; in ventral view broad and covered by setae. Xth tergum, in lateral view (fig. 6), slender, parallel-sided and slightly curved ventrad; in dorsal view with convex lateral margins, apex divided by a deep, trianguloid central cleft and two minor lateral clefts, two pairs short setae present near apex. Phallus, in lateral view (fig. 9), slender, with posterior part smoothly curved ventrad, in dorsal view (fig. 10), with basal half slender and distal part strongly expanded laterally, about 3× broader than the median part.

### Etymology

*Malickyi*, named after Dr. Hans Malicky in recognition of his contribution to the understanding of the Oriental Trichoptera fauna.

### BIOGEOGRAPHICAL NOTES

By not listing any taxa of Helicopsychidae, some authors (Kimmins 1955, Malicky 1995) indicate that the number of Helicopsychidae species in the Malesian Archipelago is low. Thus, when considering the Helicopsychidae, the Malesian Archipelago may con-



Figs 2-10. *Helicopsyche malickyi* sp.n. — 2, Head, lateral view; 3, Right wings; 4, VIth sternal process, lateral view; 5, VIth sternal process, ventral view; 6, Genitalia, lateral view; 7, Male genitalia, dorsal view; 8, Genitalia, ventral view; 9, Phallus, lateral view; 10, Phallus, dorsal view.

stitute an actual low-diversity area. However, as is the case in other areas (Johanson 1993, Johanson 1997b, Schmid 1993), the family appears to be disjunctively distributed and is expected to be diverse in certain localities. This may be the case for the Helicopsychidae of the Malesian Archipelago as well and is supported by the findings of two more species (Huisman 1991). Thus, it might be expected that more species will appear from that area in the future.

## ACKNOWLEDGEMENT

Dr. Hans Malicky gave valuable information on *Helicopsyche namtok* Malicky, 1993.

## REFERENCES

- Huisman, J., 1991. A study of Trichoptera in Sabah and Sarawak. – Proceedings of the 6th International Symposium on Trichoptera. Adam Mickiewicz University Press, Poznan. Serie Zoologie: 275-278.
- Johanson, K. A., 1993. New *Helicopsyche* von Siebold, 1856 (Trichoptera: Helicopsychidae) from East Africa. – Annales de limnologie 29 (2): 139-155.
- Johanson, K. A., 1995. A catalog of the Helicopsychidae (Insecta: Trichoptera) of the World. – Bulletin Zoologisch Museum, Universiteit van Amsterdam 14 (7): 101-123.
- Johanson, K. A., 1997a. Description of *Helicopsyche giboni* sp.n. from Madagascar (Trichoptera: Helicopsychidae). – Braueria 24: 5-6.
- Johanson, K. A., 1997b. Zoogeography and diversity of the snail case caddisflies (Trichoptera: Helicopsychidae). – Pp. 205-212 in Holzenthal, R.W. and O.S. Flint Jr. (eds). Proceedings of the 8th International Symposium on Trichoptera. Ohio Biological Survey, Columbia.
- Kimmins, D. E., 1955. Results of the Oxford University Expedition to Sarawak, 1932. – Sarawak Museum Journal 6 (5): 374-442.
- Malicky, H., 1994. Zwei neue *Helicopsyche* (Helicopsychidae) aus Perak, Malaysia. – Braueria 22: 4.
- Malicky, H., 1995. A preliminary list of Trichoptera from Bali. – Braueria 22: 4.
- Malicky, H. & P. Chantaramongkol, 1993. Neue Trichopteren aus Thailand. Teil 2: Rhyacophilidae, Philopotamidae, Polycentropodidae, Ecnomidae, Psychomyiidae, Xiphocentronidae, Helicopsychidae, Odontoceridae. – Linzer biologische Beiträge 25: 1137-1187.
- Ulmer, G., 1951. Köcherfliegen (Trichopteren) von den Sunda Inseln (Teil I). – Archiv für Hydrobiologie, Supplement 19: 1-528.
- Ulmer, G., 1955. Köcherfliegen (Trichopteren) von den Sunda Inseln (Teil II). – Archiv für Hydrobiologie, Supplement 21: 408-608.
- Ulmer, G., 1957. Köcherfliegen (Trichopteren) von den Sunda Inseln (Teil III). – Archiv für Hydrobiologie, Supplement 23: 109-470.

Received: 23 May 1997

Accepted: 20 October 1997